Washington State Institute for Public Policy

Benefit-Cost Results

Positive Action

Public Health & Prevention: School-based

Benefit-cost estimates updated December 2016. Literature review updated August 2015.

Current estimates replace old estimates. Numbers will change over time as a result of model inputs and monetization methods.

The WSIPP benefit-cost analysis examines, on an apples-to-apples basis, the monetary value of programs or policies to determine whether the benefits from the program exceed its costs. WSIPP's research approach to identifying evidence-based programs and policies has three main steps. First, we determine "what works" (and what does not work) to improve outcomes using a statistical technique called meta-analysis. Second, we calculate whether the benefits of a program exceed its costs. Third, we estimate the risk of investing in a program by testing the sensitivity of our results. For more detail on our methods, see our Technical Documentation.

Program Description: Positive Action is one example of a school-wide positive behavior program, aimed at improving social and emotional learning and school climate. Positive Action consists of a detailed curriculum of approximately 140 short lessons throughout the school year in K-6th grades and 82 lessons in 7th-8th grades. School climate components of the program reinforce the classroom curriculum and include training and professional development for teachers, resource coordination, and incentives for positive behavior.

Benefit-Cost Summary Statistics Per Participant

Benefits to:

Taxpayers	$3,012
Participants	$6,005
Others	$2,869
Indirect	($92)
Total benefits	$11,793
Net program cost	($440)
Benefits minus cost	$11,353

Benefit to cost ratio	$26.81
Benefits minus costs	$11,353
Chance the program will produce benefits greater than the costs	88 %

The estimates shown are present value, life cycle benefits and costs. All dollars are expressed in the base year chosen for this analysis (2015). The chance the benefits exceed the costs are derived from a Monte Carlo risk analysis. The details on this, as well as the economic discount rates and other relevant parameters are described in our Technical Documentation.

Detailed Monetary Benefit Estimates Per Participant

Benefits from changes to:[1]	Benefits to:				
	Participants	Taxpayers	Others[2]	Indirect[3]	Total
Crime	$0	$33	$71	$16	$120
Labor market earnings associated with test scores	$6,069	$2,756	$2,682	$0	$11,508
K-12 grade repetition	$0	$176	$0	$88	$264
Property loss associated with alcohol abuse or dependence	$2	$0	$4	$0	$6
Health care associated with anxiety disorder	$38	$116	$144	$58	$355
Costs of higher education	($106)	($70)	($33)	($35)	($243)
Adjustment for deadweight cost of program	$1	$0	$0	($219)	($217)
Totals	$6,005	$3,012	$2,869	($92)	$11,793

[1]In addition to the outcomes measured in the meta-analysis table, WSIPP measures benefits and costs estimated from other outcomes associated with those reported in the evaluation literature. For example, empirical research demonstrates that high school graduation leads to reduced crime. These associated measures provide a more complete picture of the detailed costs and benefits of the program.

[2]"Others" includes benefits to people other than taxpayers and participants. Depending on the program, it could include reductions in crime victimization, the economic benefits from a more educated workforce, and the benefits from employer-paid health insurance.

[3]"Indirect benefits" includes estimates of the net changes in the value of a statistical life and net changes in the deadweight costs of taxation.

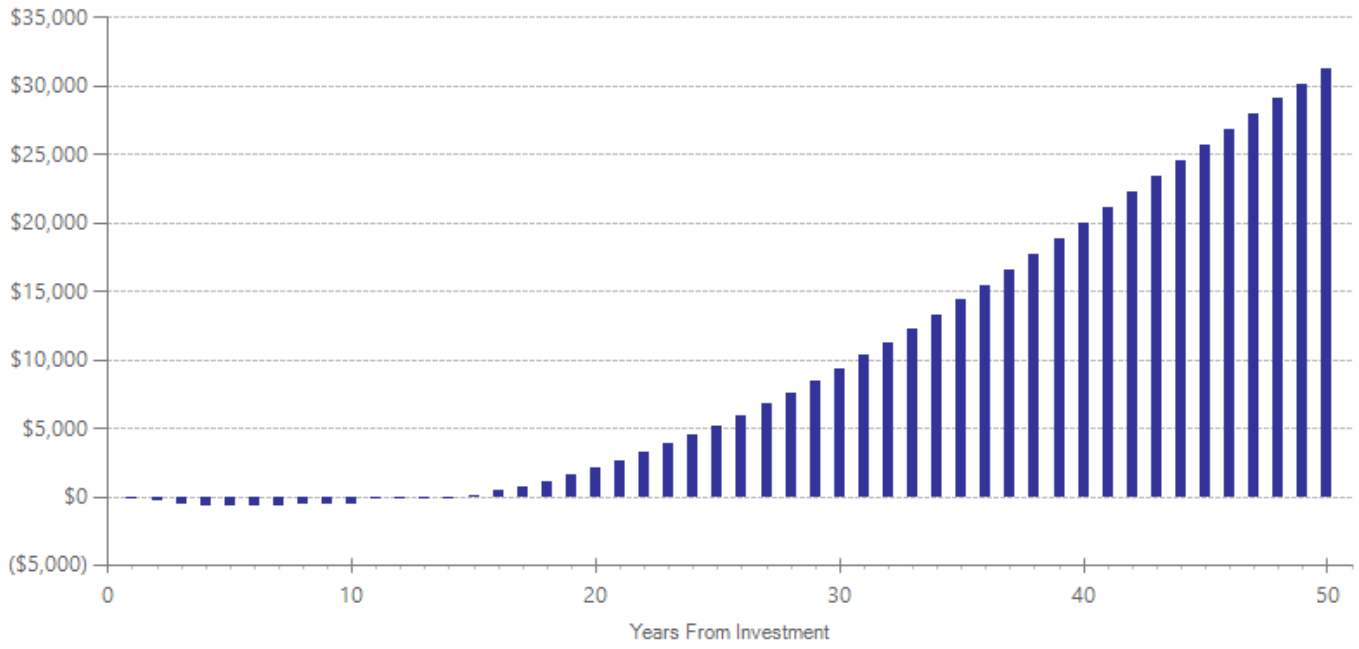
Detailed Annual Cost Estimates Per Participant

	Annual cost	Year dollars	Summary	
Program costs	$115	2014	Present value of net program costs (in 2015 dollars)	($440)
Comparison costs	$0	2014	Cost range (+ or -)	10 %

The studies that we reviewed evaluated schools after an average of 3.5 years of implementing the Positive Action program. The cost includes the price of the Positive Action program kit for the first year (average cost of $425 for 30 students); a refresher kit for each subsequent year (average of $102.11 for 30 students for 2.5 years); teacher training at an average of $3,100 for 30 teachers; and a Positive Action school-wide climate kit costing $450 for a school with 30 classrooms (http://www.positiveaction.net/). We calculated the value of staff time using average Washington State compensation costs (including benefits) for teachers as reported by the Office of the Superintendent of Public Instruction. To calculate a per-student annual cost, we used the average number of students per classroom in Washington's prototypical school formula.

The figures shown are estimates of the costs to implement programs in Washington. The comparison group costs reflect either no treatment or treatment as usual, depending on how effect sizes were calculated in the meta-analysis. The cost range reported above reflects potential variation or uncertainty in the cost estimate; more detail can be found in our Technical Documentation.

Detailed Annual Cost Estimates Per Participant



The graph above illustrates the estimated cumulative net benefits per-participant for the first fifty years beyond the initial investment in the program. We present these cash flows in non-discounted dollars to simplify the "break-even" point from a budgeting perspective. If the dollars are negative (bars below $0 line), the cumulative benefits do not outweigh the cost of the program up to that point in time. The program breaks even when the dollars reach $0. At this point, the total benefits to participants, taxpayers, and others, are equal to the cost of the program. If the dollars are above $0, the benefits of the program exceed the initial investment.

Meta-Analysis of Program Effects

Outcomes measured	No. of effect sizes	Treatment N	Adjusted effect sizes and standard errors used in the benefit-cost analysis						Unadjusted effect size (random effects model)	
			First time ES is estimated			Second time ES is estimated				
			ES	SE	Age	ES	SE	Age	ES	p-value
Smoking before end of middle school	2	1171	-0.144	0.059	11	-0.144	0.059	12	-0.341	0.002
Alcohol use before end of middle school	2	1171	-0.163	0.058	11	-0.163	0.058	12	-0.415	0.001
Illicit drug use before end of middle school	1	976	-0.293	0.065	11	-0.293	0.065	12	-0.771	0.001
Cannabis use before end of middle school	1	195	-0.132	0.147	15	-0.132	0.147	16	-0.348	0.026
Initiation of sexual activity	1	976	-0.395	0.066	11	-0.395	0.066	11	-1.039	0.001
Test scores	5	13991	0.104	0.055	11	0.075	0.060	17	0.309	0.046
School attendance	4	17656	0.310	0.163	10	0.310	0.163	11	0.526	0.001
Suspensions/expulsions	4	10429	-0.169	0.107	10	-0.169	0.107	11	-0.224	0.042
K-12 grade repetition	1	5754	-0.307	0.007	11	-0.307	0.007	17	-0.307	0.001
Obesity	1	195	-0.080	0.105	15	0.000	0.101	18	-0.210	0.047
Major depressive disorder	1	195	-0.053	0.206	15	0.000	0.059	16	-0.139	0.502
Anxiety disorder	1	195	-0.098	0.206	15	-0.045	0.025	16	-0.257	0.213

Meta-analysis is a statistical method to combine the results from separate studies on a program, policy, or topic in order to estimate its effect on an outcome. WSIPP systematically evaluates all credible evaluations we can locate on each topic. The outcomes measured are the types of program impacts that were measured in the research literature (for example, crime or educational attainment). Treatment N represents the total number of individuals or units in the treatment group across the included studies.

An effect size (ES) is a standard metric that summarizes the degree to which a program or policy affects a measured outcome. If the effect size is positive, the outcome increases. If the effect size is negative, the outcome decreases.

Adjusted effect sizes are used to calculate the benefits from our benefit cost model. WSIPP may adjust effect sizes based on methodological characteristics of the study. For example, we may adjust effect sizes when a study has a weak research design or when the program developer is involved in the research. The magnitude of these adjustments varies depending on the topic area.

WSIPP may also adjust the second ES measurement. Research shows the magnitude of some effect sizes decrease over time. For those effect sizes, we estimate outcome-based adjustments which we apply between the first time ES is estimated and the second time ES is estimated. We also report the unadjusted effect size to show the effect sizes before any adjustments have been made. More details about these adjustments can be found in our Technical Documentation.

Citations Used in the Meta-Analysis

Bavarian, N., Lewis, K.M., Acock, A., DuBois, D.L., Zi, Y., Vuchinich, S., . . . Flay, B.R. (under review). *Direct and mediated effects of a social-emotional learning and health promotion program on adolescent health outcomes: A matched-pair, cluster-randomized controlled trial.*

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